DOWNPIPE CONNECTOR SYSTEM

BACKGROUND OF THE INVENTION

This invention relates to a downpipe connector system.

In many countries and especially in Mexico and the southern parts of the United States of America, homes and other buildings are sometimes constructed with flat composite and gravel roofs. This style of roof is sometimes called a Santa Fe style.

Rainwater from these flat roofs of Santa Fe style houses is conveyed to the ground via canales. In older style buildings, logs project outwardly from outside walls of the building and have the appearance as being part of the support structure of the building. They are in fact short lengths of tree logs and have a channel formed in an upwardly facing part of the log and extend along the log to form a crude gutter along which water from the roof may be conveyed. These logs are fitted flush with the inside of the parapet wall with the top of the canales flush or slightly lower than the flat roof surface.

Rain which falls onto the roof is directed from the flat roof to the canales and flows along the channels formed in the canales and is directed away from the building and falls onto the ground. In this way, water is able to drain from the roof and falls onto the ground and away from the foundations of the building.

New Santa Fe style homes are now no longer made from mud brick but are constructed of timber and stucco to give the building the appearance of a traditional Santa Fe style. Canales are typically constructed from straight sawn timber with a channel lined with aluminium and have a flat base of a width of about 8 inches (200m). Once

again rainwater, when it exits the canale, normally drops onto the ground. The ground may be prepared for better drainage with aggregate or aggregate placed over a grided drain.

There is now a need to harvest water from roofs of this type and this was not previously possible.

OBJECT OF THE INVENTION

It is an object of the present invention to provide a downpipe connector system which allows water from diverted canales to be collected and directed to a downpipe for harvesting.

SUMMARY OF THE INVENTION

According to one aspect, the invention provides a downpipe connector system having a downpipe connector for attachment relative to a channel in a canale, the connector having a first portion with an upstanding wall and a floor from which the wall extends, a tubular extension projecting from the floor and having a flow passage extending therethrough, and the system further having a transverse wall extending across the channel and downstream of the connector and extending upwardly in the channel from the upstanding wall.

DESCRIPTION OF THE INVENTION

Preferably, the tubular extension is substantially circular in transverse cross section and in which case the upstanding wall is substantially circular in shape when viewed from above. In this embodiment, the floor is substantially annular in shape. The tubular extension, floor and wall may have any other suitable shape.

The tubular extension may terminate in a merging section.

A second tubular extension of a transverse area smaller than the transverse area of the first tubular extension

may extend from merging section. The longitudinal central axis of the second tubular extension is offset relative to the longitudinal central axis of the second section. Preferably both sections have a circular transverse shape.

In the system of the invention the transverse wall extends down into the channel and terminates at a height corresponding to the height of the upstanding wall. Since the wall extends across the full width of the channel a respective low flow and sediment flow passage is present in the channel on sides of the upstanding wall. Where the wall is circular in shape, the flow passages are located at diametrically opposed locations relative to the wall.

DESCRIPTION OF THE DRAWINGS

A particular preferred embodiment of the invention will now be described by way of example with reference to the drawings in which:

Figure 1 is a transverse sectional view taken through a canale and showing detail of a downpipe connector system according to an embodiment of the invention;

Figure 2 is a top perspective view of a downpipe connector system according to an embodiment of the invention;

Figure 3 is a longitudinal sectional view of the system as shown in figure 5;

Figure 4 is a vertical sectional view of a downpipe connector of the system shown in figures 1 to 3;

Figure 5 is a top perspective view of the downpipe connector of figure 4.

DESCRIPTION OF PREFERRED EMBODIMENT

As shown in figure 2, the canale 10 has a base 11 with a base wall 12. A rectangular channel 13 is formed in the canale 10. A circular passage 14 (see figure 1) is formed

in the canale 10 and extends from the channel 13 (see figure 1) and through the base 11. The canale 10 projects through a parapet P of a building having a roof R. The top of the canale 10 is shown flush with the upper surface of the roof.

As shown in figures 4 and 5, connector 20 has a first portion with an upstanding circular wall 21 and a floor 22. The underside of the floor 22 rests on the base wall 12 of the channel 13 and extends around the passage 14. The underside is provided with a groove 22a for receiving a sealant.

Tubular extension 23 of first diameter corresponding to the diameter of the passage 14 extends from the floor 22 and projects beyond the base wall 12 of the canale.

The connector 20 in this embodiment has a second tubular extension 30 of a diameter less than the diameter of extension 23. A merging section 31 extends between extension 23 and extension 30. Typically, extension 23 has a diameter which allows it to fit neatly within a 4 inch diameter downpipe whilst extension 30 has a diameter which allows it to fit neatly within a 3 inch diameter downpipe. Where the system is used in a situation having 4 inch diameter downpipes, merging section 31 and extension 30 may be omitted.

Merging section 31 may have a length of about 0.5 inches, extension 23 may have a length of about 4 inches and extension 30 may have a length of about 2 inches although other lengths and diameters are not excluded.

As shown in figure 1 a transverse wall 33 extends across the channel 13 and at a location downstream of the first portion of the connector. The wall 33 acts as a weir or dam and extends from a location in the channel adjacent the upper end of wall 21. Low flow and sediment flow

passages 34, 35 remain in the channel 13 and on either side of the channel adjacent the wall 21.

Figure 2 shows a top perspective view of the system of an embodiment of the invention. The extensions 23 and 30 are not concentrically aligned. In this way, when extension 30 is present and locates within a downpipe 30a, the downpipe may extend closely adjacent and along and down an external wall 40 of a building to which the system of the invention is fitted. Likewise, with extension 30 and merging section 31 omitted, the downpipe fitted to extension 23 is also able to extend neatly closely adjacent and along and down the wall of the building.

The system of the invention allows downpipes to be coupled to the canales and thus rainwater from the roof of the building may be collected and stored for later use.

In order to fit the connector to a canale, passage 14 is formed in the canale. Sealant 40 in a groove in the underside of floor 22 seals the connector to the channel 13 in the canale.

When light rain falls on the roof of a building having canales like canale 10, the wall 21 ensures that the water does not flow through the connector 20 but rather flows under the wall 33 and through the sediment flow passages 34, 35. In this way initial light rain which is likely to contain sediment is not caused to flow through the connector 20. Heavier flow may pass over wall 21 and through the connector and this is assisted by the wall 33.

In the case of heavy rain, extreme flows of water may pass over wall 33 and flow along the channel 13 and onto the ground when the connector is unable to cope with

heavy flows.